Naval Medical Research Unit Dayton
Wright-Patterson AFB, Ohio

Science Update

Volume 5, Issue I Winter

MISSION

To maximize warfighter performance and survivability through premier aeromedical and environmental health research-delivering solutions to the field, the Fleet, and for the future.

VISION

NAMRU-D is Navy Medicine's world class, global aeromedical and toxicology research leader. Our efforts and innovative products are aligned with operational requirements to solve the naval and joint warfighter challenges of the future.

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NAMRU-D and NAMRU-SA to Investigate Laser Scatter on Warfighter Performance

Dec 11-12 2014: Dr. Mike Reddix and LCDR John Bradley traveled to NAMRU-SA for a project meeting on an OSD sponsored "Laser Dazzle" project. NAMRU-D is collaborating with NAMRU-SA and US Air Force Research Laboratory to model effects of laser scatter on warfighter performance. (Photo taken at Joint Base San Antonio)

By: Dr. Mike D. Reddix

The Naval Medical Research Unit Dayton (NAMRU-D) and the Naval Medical Research Unit San Antonio (NAMRU-SA) are partnering with the Air Force Research Laboratory's Optical radiation Branch (AFRL/RHDO) and the United Kingdom's, Ministry of Defense, Defense Science and Technology Laboratory (Dstl) to conduct research to augment and validate predictive models of laser glare and its impact on human visually-mediated performance. This work is especially important given the increase, across the services and the Federal Aviation Administration (FAA), in aircraft cockpit laser illumination events. These less-than-lethal exposures to non-ionizing radiation pose a safety-of-flight risk, especially during nighttime operations, and critical phases of flight. NAMRU-D and NAMRU-SA will develop protocols to assess inter-ocular scatter of coherent light sources that are propagated across ground and water operating environments. Improved laser scatter models will, a) augment international safety standards that currently only address laser eye damage, b) improve our understanding of non-lethal laser exposures on human performance, and c) advise low-intensity threat laser eye protection development efforts. The research will vary background ambient luminance, visible laser wavelength, laser beam angle of incidence, laser power, and target luminance and contrast in order to accurately characterize inter-ocular scatter and its relationship to operationally-relevant tasks. This collaborative research effort stems from an Office of Secretary of Defense (OSD) sponsored "Laser Dazzle" project meeting, which two NAMRU-D researchers attended on 11-12 December 2014 in San Antonio. Dr. Mike Reddix (NAMRU-D Senior Research Psychologist), LCDR John Bradley (NAMRU-D Aerospace Optometrist), LT Mike Tapia (NAMRU-D Aerospace Physiologist) and Mr. Roy Dory (NAMRU-SA Biomedical Engineer) will coordinate range research to be conducted at the Tri-Service Research Laboratory (TSRL), Joint Base San Antonio, and lead maritime tests at the Naval Surface Warfare Center Crane, Lake Glendora Test Facility.

2015 New Year's Log Entry

By: CAPT Rees L. Lee, XO, NAMRU-D

The year begins at NAMRU-D
With great anticipation for upcoming great deeds
Reducing pilot disorientation in the air
Is a goal most fair
And soon we will have a new DRD!

Round and round it will go
Planetary, vertical and horizontal motions galore
Making our subjects eyes spin
Provides the data we need to win
But mess up our new Kraken we will not
No spewing allowed on this spot

Our scientists will bring all their tools to bear
To answer the questions of NAVAIR
Normobaric Chamber, ROBD and Barany chair
Flight sims, lasers and other toys
All aim to make us safe in the air
And if this makes you too fatigued
Dr. Caldwell's sleep lab is probably what you need

Rats and mice are our friends
In determining toxicology ends
You may ask: Is it safe to fuel a jet?
Or will it irritate my temperament?
Best are we at this inquiry
For inhalation research is our specialty

And if the animals are too much for you
Cells in vitro may serve instead
To answer the question in your head
GC, Mass Spec and HPLC
Are just a few of the machines we use
To allow our scientists to see

But nothing happens without the skills
Of experts in Finance and Admin support
Functioning as a family is our goal
So that When Work Works nothing is impossible

NAMRU-D is at flank speed, course set straight and true
And staffed with the best research crew
Please accept this first WAR report from NAMRU-D

NAMRU-D Honored as a 2014 When Work Works Award Winner

By: NAMRU-D Public Affairs

On 19 Nov 2014, Naval Medical Research Unit Dayton (NAMRU-D) was honored as a recipient of the 2014 When Work Works Award at the Dayton Area Chamber of Commerce (DACC). The When Work Works Award, previously known as the Alfred B. Sloan Award for Excellence in Workplace Effectiveness and Flexibility recognizes organizations that are "*a leading employer of choice by demonstrating success in using flexibility as part of an effective workplace strategy to achieve business goals and benefit employees by helping them meet their responsibilities on and off the job*."

NAMRU-D command members upon their reception of their first When Work Works Award for Business Excellence in Workplace Flexibility.

The applications process took place in two rounds over the span of approximately five months. Round I involved employers to apply by way of an on-line application about the effective workplace programs and practices at their worksite. Responses were then measured against a nationally representative sample of employers. NAMRU-D was ranked among the top 20% of employers in the US and moved onto Round II. The second round involved an employee survey, which was two-thirds of our evaluation. Applicants are evaluated on six research-based ingredients of an effective workplace: opportunities for learning; a culture of trust; work-life fit; supervisor support for work success; autonomy; and satisfaction with earnings, benefits and opportunities for advancement - all factors associated with employee health, well-being, and engagement.

NAMRU-D has incorporated unique and innovative ways of providing workplace flexibility to our employees, some of which included telecommuting program, and awards program, a fitness for life program, a workplace delegation policy, and an active Family Readiness Group. The variety of programs can be tailored to the needs of our civil service and military personnel in an effort to minimize employee burn-out and maximize moral.

Winning this honorable award reflects that "We, NAMRU-D, are an extended family and strong team that succeeds because our cornerstones are unity, pride, and respect. It is this teamwork and creative thinking that will forge the future growth and ultimate effectiveness of NAMRU-D. It is amazing what can be accomplished when individuals are empowered and have ownership in a product or policy and then work together as a team to reach a relevant solution. I have complete trust and confidence in the NAMRU-D team and know they can overcome any challenge and achieve greatness," said CAPT Jeffrey Andrews, NAMRU-D Commanding Officer.

Mr. Eric Cluxton, DACC Board President congratulates LCDR Pyles, Director for Administration, NAMRU-D and CAPT Lee, Executive Officer, NAMRU-D

Israeli Air Force Surgeon General Visits NAMRU-D

By: NAMRU-D Public Affairs

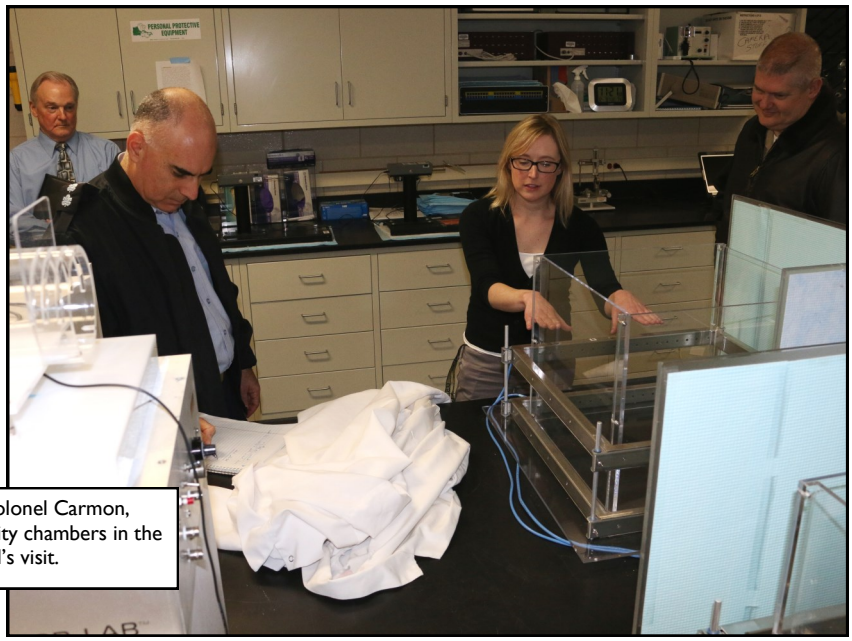
On 9 Dec 2014, Naval Medical Research Unit Dayton (NAMRU-D) at Wright-Patterson Air Force Base, Ohio hosted Colonel Erez Carmon, Surgeon General of the Israeli Air Force. The tour was part of a broader visit to meet with U.S. Air Force (USAF) and U.S. Navy (USN) Aerospace Medicine counterparts. Colonel Carmon is board certified in Obstetrics and Gynecology and prior to his current assignment he served as the Israeli Navy Surgeon General in addition to various operational command and leadership positions during his military career.

CAPT Andrews, Commanding Officer at NAMRU-D thanks Colonel Carmon, Surgeon General of Israeli Air Force for his visit on Dec 9, 2014.

Dr. Richard Arnold, Aeromedical Director, led Colonel Carmon to our hypoxia labs, spatial disorientation (SD) labs, and our fatigue countermeasures lab. Mrs. Stephanie Warner and Dr. Leslie Drummond described NAMRU-D's joint investigations with the collocated USAF 711th Human Performance Wing (711 HPW). NAMRU-D is performing environmental altitude chamber testing of candidate gas and chemical sensors for integration into flight masks for hypoxia detection. Following, Dr. Hank Williams and CDR Richard Folga delivered briefs in the SD labs on the development and validation of SD simulator training scenarios research and capabilities. CDR Folga focused on NAMRU-D's state-of-the-art disorientation research device (DRD) capabilities regarding it as a link to effective Human System Integration (HSI).

The tour continued as Dr. Michael Gargas, Environmental Health Effects Director, guided Colonel Carmon to our inhalation lab, the largest inhalation toxicology research facility within Department of Defense (DoD). Next, Dr. Gargas directed Colonel Carmon to one of NAMRU-D's neurobehavioral labs and our neurophysiology lab. Dr. Karen Mumy briefed the Colonel on NAMRU-D's ability to perform a comprehensive battery of behavioral tests that measure a variety of performance areas. Dr. Mumy also discussed the neurophysiology abilities, specifically the Microelectrode array system (MED64). MED64 is ideal for brain slices or cultured excitable cells, can record activity of multiple neurons and cells, and can simultaneously record from all 64 electrodes in an 8x8 array with an electrode diameter (20-50 µm) and spacing (150-200 µm).

NAMRU-D's Captain Jeffrey Andrews, Commanding Officer and Captain Rees Lee, Executive Officer provided a short command brief preceding Colonel Carmon's tour of the two NAMRU-D research directorate laboratory facilities. Overall, the visit was well received and it was evident that all those involved were clearly dedicated to their work and to the health and safety of the warfighter.



Dr. Karen Mumy, front right, shows Colonel Carmon, front left, NAMRU-D's open field activity chambers in the neurobehavioral lab during the Colonel's visit.

NAMRU-D Scientists Participate in Pulmonary Health Research Review

By: Dr. Michael L. Gargas and CAPT Rees L. Lee

Dr. Michael L. Gargas, Naval Medical Research Unit Dayton (NAMRU-D) Environmental Health Effects Director and CAPT Rees L. Lee, NAMRU-D Executive Officer, were invited to participate in an eighteen person Review Panel for the Military Operational Medicine Research Program (MOMRP) Pulmonary In Progress Review (IPR) held on 4 December 2014 at Fort Detrick, MD. Under the direction of the Joint Program Committee 5 (JPC-5), the pulmonary health research program of the MOMRP is required to conduct an IPR once a year. The stated purpose of the IPR is to: "Ensure an integrated pulmonary health research program of scientific excellence leading to products that improve and sustain the health and performance of Service Members". The objectives of the IPR include reviewing JPC-5 MOMRP research efforts and providing suggestions with regard to the scientific excellence of the projects and likely translation to a military application. It also provided the opportunity to foster collaboration between pulmonary research groups as well as addressing ongoing challenges and future directions for the pulmonary program.

The Review Panel consisted of representatives from academia, the private sector, the Defense Health Agency (DHA), as well as from the Tri-Services. The Pulmonary IPR reviewed four ongoing research projects funded by the MOMRP/JPC-5 and one proposed project. Panel Members rated each project via an evaluation form that was accessed via individual laptop computers. In a unique and effective manner, the Panel Members were to fill out the evaluation form during the presentations, the ensuing question and answer period, and for a specified time immediately following the discussions. This format allowed very timely feedback to the MOMRP/JPC-5 on each project.

Participation in these events are vital not only to assure the relevance and quality of the research programs intended to aid our service members, but it also serves as a way to promote and encourage "jointness" within the Department of Defense research efforts. With shrinking availability of research funds, it is only prudent to avoid duplication of research efforts and maximize the return on investment. The sharing of information, the exchange of ideas, and the networks established during IPRs go a long way toward reaching these goals.

Dr. Michael Gargas, Director of Environmental Health Effects at NAMRU-D and CAPT Rees Lee, NAMRU- D Executive Officer attended the 2014 MOMRP Pulmonary Program Review.

NAMRU-D Stays at the Forefront of Advancing Military Fuels

PACIFIC OCEAN (Aug. 16, 2014) An Aviation Boatswain's Mate (Fuels) carries a fuel hose to refuel an AV-8B Harrier jet during flight operations aboard the amphibious assault ship USS Makin Island (LHD 8). (U.S. Navy photo by Mass Communication Specialist 2nd Class Christopher Lindahl/Released)

By: Dr. Karen L. Mumy

Alternative fuels continue to push forward for use within the Department of Defense. Fuel chemists and engineers have developed processes that utilize everyday sources, such as fats and vegetable oils, or renewable resources including algae and biomass and convert them into various fuel forms that function similarly to conventional fuels. In addition to the obvious and necessary operational testing, the potential effects of fuel exposure on the warfighter also must be a consideration. The Naval Medical Research Unit Dayton (NAMRU-D) has been at the forefront of the DOD's alternative fuel efforts by helping to provide toxicological, health and risk assessments. NAMRU-D performs toxicology research to fill the data gaps with regard to potential health effects and risk associated with exposure to these newly developed fuels.

As part of these efforts, Dr. Karen Mumy, NAMRU-D team member and Deputy Director of the Environmental Health Effects Directorate, provided two briefings at an annual gathering on Toxicology Perspectives on Jet & Alternative Fuels. The event took place 6 November 2014 at Tec^Edge Innovation and Collaboration Center in Dayton, OH. This gathering has been held annually since 2010 and serves to bring together leaders in fuel chemistry and toxicology from industry, the DOD and the Environmental Protection Agency (EPA). The first of Dr. Mumy's briefings consisted of a summary of data from a recently executed toxicology study performed at NAMRU-D, in collaboration with the Air Force 711th Human Performance Wing (HPW)/RHDJ and funded by the Alternative Fuels Certification Office, that evaluated the health effects of inhalation exposure to an alcohol-to-jet fuel in FY13. A second briefing provided mechanistic insight into the proposed molecular pathways that lead to the toxicological effects of fuels and similar complex mixtures. These events offer great opportunities for chemists and toxicologists from the DOD and industry to consider new advances and identify data gaps that need to be filled to determine the risk of exposure to fuels.

NAMRU-D Strengthens Old Ties with NASA

By: Dr. Richard D. Arnold

Visitors to Naval Medical Research Unit Dayton's (NAMRU-D) Aeromedical Directorate will still find a few mementos of the lab's key role in the Nation's early manned space program. In preparation for manned space flight, in the late 1950s the lab's research director, CAPT Ashton Graybiel, established a program of biomedical research focused on problems in space medicine. The lab was then a department of the USN School of Aviation Medicine and subsequently established as an independent laboratory, the Naval Aerospace Medical Research Laboratory (NAMRL) in 1970. Throughout the 1950s, 60s, 70s, and 80s NAMRL, and Dr. Graybiel especially, played a key role in the US space program by conducting groundbreaking aeromedical research to enhance the health, safety, and performance of NASA astronauts.

On 28 May 1959 a squirrel monkey from the NAMRL laboratory, Miss Baker, became one of the first two primates launched into space and successfully recovered. Her travel partner, an Army rhesus monkey named Miss Able, died four days later. Miss Baker became a national celebrity, and remained a local celebrity in Pensacola, where a parade was held each year on her "birthday". In 1971 she was transferred from NAMRL to the US Space and Rocket Center in Huntsville, where she lived until her death in 1984.

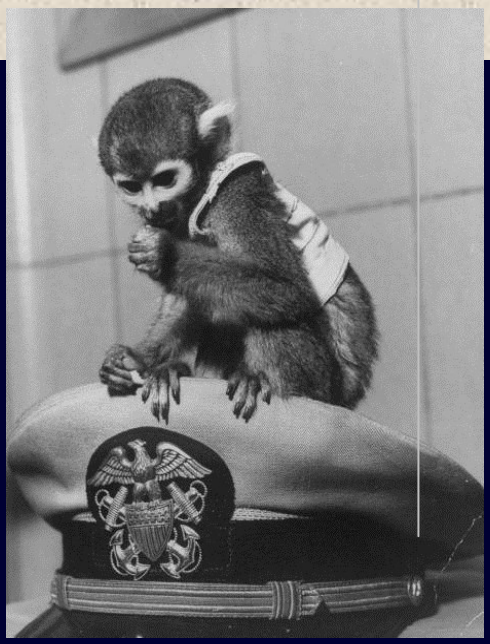
Other important work performed at the lab in Pensacola included familiarization training for the Mercury astronauts to prepare them for acceleration and gravitational extremes they would experience in space flight, collaborative work with NASA on the first space suits, and pharmaceutical research to combat space motion sickness. Dr. Graybiel remained at the core of the lab's partnership with NASA for many decades. After his retirement from Naval service in 1966 he remained at the lab as scientific director until 1980 and retired from civil service in 1986.

NAMRL continued various collaborations with NASA after Dr. Graybiel's retirement, though the partnership diminished somewhat due to the loss of its principal driving force. In 2011 the laboratory moved to Wright-Patterson Air Force Base, OH as directed by the 2005 Base Realignment and Closure Act.

As the new lab grows back into its mission, NASA is once again becoming a key research partner.

NAMRU-D is partnering with NASA and Epiomed Therapeutics to test intranasally-delivered scopolamine against space motion sickness and other forms of motion sickness. Recently NAMRU-D and NASA Langley Research Center singed an interagency agreement to conduct collaborative research on mitigation of pilot spatial disorientation, the leading aeromedical threat in military, commercial, and civil aviation. This new work will be supported by NAMRU-D's new Disorientation Research Device (DRD), a one-of-a-kind research platform that is expected to provide a foundation for the next generation of research into problems of pilot spatial disorientation and related vestibular and acceleration problems. It is also hoped to provide one more foundation for the reestablishment of the lab's special relationship with NASA.

NAMRU-D's new Disorientation Research Device (DRD), a one-of-a-kind research platform.



NAMRL's lab squirrel monkey, Miss Baker, was one of the first two primates launched into space and successfully recovered on 28 May 1959.

Dr. Ashton Graybiel (1902-1995)

NAMRU-D Products & Presentations

Caldwell, J.A. & Caldwell, J.L. (2014, May). *Understanding and managing fatigue in aviation.* Workshop at 84th Annual Aerospace Medicine Association Conference, San Diego, California.

Folga, R.D. (2015, January). *Motion sickness countermeasures laboratory.* Presentation at the U.S. Naval Aeromedical Conference, Pensacola, Florida.

Folga, R.D., Eggan, S.M., & Kirkendall, C.D. (2014, May). U*.S. Navy and Marine Corps spatial disorientation incidents as reported in the Naval Aviation Safety Awareness Program.* Poster presented at 84th Annual Aerospace Medicine Association Conference, San Diego, California.

Folga, R.D., Patterson, R., & Williams, H. (2014, May). *Assessing where pilots are looking: Eye tracking during episodes of pilot spatial disorientation and control reversal errors.* Presentation presented at 84th Annual Aerospace Medicine Association Conference, Pensacola, Florida.

Geyer, D.J., Littman, E.M., Gomez, J., & Becker, W.J. (2014, May). *An updated review of scopolamine's mechanism of action.* Poster presented at 84th Annual Aerospace Medicine Association Conference, San Diego, California.

Guznov, S., Caldwell, J.L., Ogle, & Young. (2014, May). *Combined over-the-counter and prescription stimulant use in U.S. Air Force special tactics operations*. Poster presented at 84th Annual Aerospace Medicine Association Conference, San Diego, California.

Hardt, D.J., James, R.A., Gut, C.P., McInturf, S.M., Sweeney, L.M., Erickson, R.P., & Gargas, M.L. (2015). Evaluation of submarine atmospheres: effects of carbon monoxide, carbon dioxide, and oxygen on general toxicology, neurobehavioral performance, reproduction and development in rats. I. Subacute exposures. *Inhalation Toxicology, 27*(2), 83-89.

Howard, W.R., Rohan, J.G., & Gut, C.P. (2014, August). Jet Fuel Impact on Estrogen Signaling Pathways as a Potential Mechanism for Endocrine Disruption and Reproductive Toxicity. *Abstract submitted to 2014 Military Health Systems Research Symposium.*

James, R.A., Mahle, D.A., Mattie, D.R., Howard, W.R., Wong, B.A., & Eden, P.R. (2014, March). *Use of a single pass, nose only exposure system to simulate high altitudes.* Poster presented at Society of Toxicology 53rd Annual Meeting, Phoenix, Arizona.

Lawson, B., Arnold, R.D., Newman, M., Rupert, A., McGrath, A., Milam, A., & Thompson, L. (2014, May). *Quantitative modeling and simulation of spatial disorientation (SD) events.* Presentation presented at 84th Annual Aerospace Medicine Association Conference, San Diego, California.

Littman, E.M. & Folga, R.V. (2014, May). *Motion sickness in the naval aviation fleet as reported in the naval aviation safety awareness program.* Poster presented at 84th Annual Aerospace Medicine Association Conference, San Diego, California.

Mahle, D.A., Eden, P.R., Shyyanov, P.A., Hack, C.E., Qi, L., & James, R.A. (2014, March). *Effect of altitude on tissue distribution of toluene in S-D rats.* Poster presentation at Society of Toxicology 53rd Annual Meeting, Phoenix, Arizona.

Makley, M.K., Chapleau, R.R., Ntamack A.G., James, R.A., Gearhart, J.M., & Mahle, D.A. (2014, March). *Mitochondrial respiratory impact of acute toluene exposure after rapid altitude adjustment.* Poster presented at the Society of Toxicology 53rd Annual Meeting, Phoenix, Arizona.

Mattie, D., Sweeney, L.M., Mumy, K.L., Wong, B.A., & Sterner, T. (2014, March). Human *health assessment of hydroprocessed esters and fatty acids (HEFA) bio-based jet fuels.* Poster presented at Society of Toxicology 53rd Annual Meeting, Phoenix, Arizona.

Patterson, F.R. Williams, H.P., Arnold, R.D., & Folga. R.F. (2014, December). *Spatial disorientation countermeasures training systems.* Exhibit Fact Sheet from Interservice/Industry Training, Simulation and Education Conference (I/ITSEC), Orlando, Florida.

Phillips, J.B. (2015, January). *Recent studies in hypoxic hypoxia sensing and cognitive/perceptual effects.* Presentation at the U.S. Naval Aeromedical Conference, Pensacola, Florida.

Phillips, J.B., Wright, B.A., Folga, R.V., Horning, D.S., Powell, E.D., & O'Hara, R.B. (2014, May). *Comparing physiological responses to normobaric and hypobaric environments.* Presentation presented at 84th Annual Aerospace Medicine Association Conference, San Diego, California.

Reddix, M.D., Kirkendall, C.D., Gao, H., O'Donnell, K.A., Williams, H.P., Eggan, S.M., & Wells, W.H. (2014, May). *Assessment of color vision screening tests for U.S. Navy special duty occupations.* Presentation presented at 84th Annual Aerospace Medicine Association Conference, San Diego, California.

Robinson, F.E., Phillips, J., Warner, S., Drummond, L., & Funke, M. (2014, May). *The performance effects of hypoxia: An additive factors approach.* Presentation presented at 84th Annual Aerospace Medicine Association Conference, San Diego, California.

Sloan, C., Lee, R.L., Gebretsadik, T., Michel, A., Berrett, C., Heaton, M., Sicignano, N., Hartert, T. (2014). Spatiotemporal Patterns Of Winter Virus Season Bronchiolitis In A Nationwide US Infant Population. Presentation presented at 9th Respiratory Syncytial Virus Symposium.

Sommerville, D.R., Channel, S.R., & Sweeney, L.M. (2014, December). *Impact of Non-constant Concentration Exposure on Lethality of Inhaled Hydrogen Cyanide.* Abstract for briefing at Chemical and Biological Warfare Weaponization & Consequence Assessment Modeling Symposium, Charlottesville, Virginia.

Sweeney, L.M., Sommerville, D.R., Channel, S.R., Gargas, N.M., & Sharits, B.C. (2014, March). *Impact of non-constant concentration exposure on lethality of inhaled hydrogen cyanide in the rat: A case study for assessing the validity of toxic load models.* Poster presentation at Society of Toxicology 53rd Annual Meeting, Phoenix, Arizona.

Warner, S.A., Phillips, J.P., Lee, M.C., Funke, M.E., Robinson, F.E., & Drummond, L.A. (2014, May). *Hypoxia detection through in-mask sensors in platforms equipped with OBOGS.* Poster presented at 84th Annual Aerospace Medicine Association Conference, San Diego, California.

Williams, H.P., Carrette, T.R., Kirkendall, C.D., Barron, L.G., Rose, M.R., & Stewart, J.E. (2015, January). *Selection of UAS personnel (SUPer) phase I report: Identification of critical skills, abilities, and other characteristics and recommendations for test battery development.* Technical Report submitted to DTIC.

Williams, H.P., Folga, R.V., Patterson, F.R., Arnold, R.D., & Horning, D.S. (2014, May). *U.S. Navy and Marine Corps spatial disorientation countermeasures training: Flight simulation for black hole illusion recognition and avoidance.* Presentation presented at 84th Annual Aerospace Medicine Association Conference, San Diego, California.

Commanding Officer's Corner

This winter edition wraps up a productive year for the "Krakens" of NAMRU-D and covers the period of fiscal uncertainty when transitioning into a new fiscal year and marks the survival of another Continuing Resolution Act without any forced releases of essential personnel and the retention of essential corporate knowledge. This past year we obligated more than $11 million in funding spanning multiple appropriations and sources to include a myriad of diverse projects. Our major Aeromedical accomplishments included: Assignment as the Lead agent for the new JPC-5 task area for Aircraft Mishap Prevention, assessment of three computerized color vision tests to replace current obsolete tests used in Naval Aviation, the development/validation of simulation-based visual illusion scenarios and multimedia curricula for spatial disorientation avoidance, and the testing of sensors for hypoxia detection to be used for in-mask integration and human use testing and collaboration with USAF in response to F-22 oxygen malfunctions. Major Toxicology accomplishments included: Identification of JP-5/JP-8 Jet Fuel as risk for potential adverse health/reproductive effects for females, completed collaborative studies with the US Army validating the Toxic Load Model using HCN, completed two inhalation toxicology studies on Swedish Biofuel and GEVO jet fuel to support tri-service alternative fuels program, and designed and developed nose-only inhalation exposure system to simulate exposure to volatile chemicals in a cockpit at altitudes up to 30,000 feet.

Captain Jeffrey M. Andrews, MSC, USN
Commanding Officer

The ethos "People first, mission always" is in full effect at NAMRU-D. High morale, effective leadership, and strong teamwork continue to be our foundation as evidenced in outstanding command climate results of a 97% favorable rating and the best command climate in the Navy Medicine Research & Development enterprise as well as a winner of the 2014 When Work Works award explained on page 2. This reinforces to me that NAMRU-D is a family where people love their job and their job loves them back fostering an environment and mindset that drives the successful completion of the mission and has tremendous potential for future growth. Our command remains strong at 75 total staff which is only half of our total manning authority, but there is significant growth in manpower and science work planned for 2015. Current efforts are underway with recently awarded JPC-5 projects researching jet fuel and sand/burn pit emission exposures, and projects continue with research in fatigue, hypoxia, LASERs, and spatial disorientation. We will continue to expand our capabilities to address fleet R&D gaps and requirements and pursue jointness and collaboration with our DoD and academic partners. Contact us anytime for more information on our capabilities or for a world class tour. My sincere appreciation and utmost respect to all who are dedicated to protecting and improving our joint warfighters……One team, One fight!

Taking the Helm of Navy Medicine's Aeromedical & Environmental Health Research

Commanding Officer
CAPT Jeffrey Andrews, MSC, USN

Executive Officer
CAPT Rees L. Lee, MC, USN

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